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SHELTON, CT 06484-6212

EXAMINER	
GUARINO, RAHEL	

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2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/815,887	KUNNARI ET AL.	
	Examiner	Art Unit	
	Rahel Guarino	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/23/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

1. The abstract of the disclosure is objected to because **the abstract is over 150 words.**

Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claim 2-10, 12-20, 22-31, 33 and 34 are objected to because of the following informalities:

Claim 2,4 and 8 recite "A method as in claim 1" should be "the method as in claim 1".

Claim 3 recites, "A method as in claim 2" should be "the method as in claim 2".

Claim 5-7 recite "A method as in claim 4" should be "the method as in claim 4".

Claim 9 and 10 recites "A method as in claim 8" should be "the method as in claim 8".

Claim 12,14 and 18 recite "A method as in claim 11" should be "the method as in claim 11".

Claim 13 recites, "A method as in claim 12" should be "the method as in claim 12".

Claim 15-17 recite "A method as in claim 14" should be "the method as in claim 14".

Claim 19 and 20 recites "A method as in claim 18" should be "the method as in claim 18".

Claim 22,24, 28 and 31 recite "A method as in claim 21" should be "the method as in claim 21".

Claim 23 recites, "A method as in claim 22" should be "the method as in claim 22".

Claim 25-27 recite "A method as in claim 24" should be "the method as in claim 24".

Claim 29 and 30 recites "A method as in claim 28" should be "the method as in claim 28".

Claim 33 recites, "circuitry as in claim 32" should be "the circuitry as in claim 32".

Claim 34 recites, "circuitry as in claim 33" should be "the circuitry as in claim 33".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1-4, 8-14, 18-24 and 28-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Svensson "IEEE Journal of solid-state circuits: A 3-level Asynchronous Protocol for a differential Two-Wire communication link.

Re claim 1, Svensson discloses a Multi-level Analog Signaling (MAS) method comprising encoding data bits represented by multi-level analog signals (page 1130; section A, "encoder and driver"); transmitting the encoded data bits over at least two multi-level signal buses between a transmitter and a receiver such that (fig.1, two-wire link), on each multi-level signal bus, during each data bit period the signal level is required to change from a first signal level to a second, different signal level (fig.1, page 1129, section II, "a balanced two-wire link carrying a three-state code"); and indicating a data boundary to the receiver by holding one of the multi-level signal buses at the same level for at least two consecutive bit periods (page 1130, section B, clock extractor").

Re claim 2, the method as in claim 1, where encoding includes, when a data bit to be encoded is the same as the data bit encoded for an immediately prior bit period, encoding instead a strobe signal represented by a predetermined one of the levels of the multi-level analog signal (fig.6, page 1130 section A, "encoder and driver"), where the presence of the strobe signal at the receiver is used to generate a clock edge (page 1130, section B, "clock extractor").

Re claim 3, the method as in claim 2, where the multi-level analog signal comprises a PAM-3 signal, where two analog signal levels convey the encoded data bits and one analog signal level conveys the strobe signal (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 4, the method as in claim 1, where the data boundary comprises one of the start or the end of a multi-bit frame (page 1130-1131 section B "clock extractor").

Re claim 8, the method as in claim 1, further comprising transmitting a stream of data between the transmitter and the receiver by toggling one of the at least two multi-level signal buses between first and second signal levels to generate clock edges; and setting, so as to coincide with a generated clock edge, a signal level of another one of the at least two multi-level signal buses at a signal level representative of a logic zero signal level or a logic one signal level (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 9, the method as in claim 8, where the receiver of the stream of data performs toggling the one of the at least two multi-level signal buses between the first and the second signal levels to generate clock edges (page 1130-1131 section B "clock extractor").

Re claim 10, the method as in claim 8, where a beginning and an end of the stream of data is signaled by setting at least one of the different signal buses to a third signal level (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 11, Svensson discloses a Multi-level Analog Signaling (MAS) circuitry

arrangement comprising a transmitter to encode data bits represented by multi multi-level analog signals (page1130; section A, "encoder and driver"); at least two multi-level signal buses coupled between said transmitter and a receiver for conveying the encoded data bits such that (fig.1, two-wire link), on each multi-level signal bus, during each data bit period the signal level is required to change from a first signal level to a second, different signal level (fig.1,page 1129, section II, "a balanced two-wire link carrying a three-state code"); said transmitter indicating a data boundary to the receiver by holding one of the multi-level signal buses at the same level for at least two consecutive bit periods (page 1130, section B, clock extractor").

Re claim 12, the (MAS) circuitry arrangement as in claim 11, where said transmitter operates to encode data bits such that, when a data bit to be encoded is the same as the data bit encoded for an immediately prior bit period, the transmitter instead encodes a strobe signal represented by a predetermined one of the levels of the multi-level analog signal (fig.6, page 1130 section A, "encoder and driver"), where the presence of the strobe signal at the receiver is used to generate a clock edge (page 1130, section B, "clock extractor").

Re claim 13, the (MAS) circuitry arrangement as in claim 12, where the multi-level analog signal comprises a PAM-3 signal, where two analog signal levels convey the encoded data bits and one analog signal level conveys the strobe signal (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 14, the (MAS) circuitry arrangement as in claim 11, where the data boundary comprises one of the start or the end of a multi-bit frame (page 1130-1131,

section B "clock extractor").

Re claim 18, the (MAS) circuitry arrangement as in claim 11, where said transmitter and said receiver cooperate to transmit a stream of data by toggling one of the at least two multi-level signal buses between first and second signal levels to generate clock edges, and by setting, so as to coincide with a generated clock edge, a signal level of another one of the at least two multi-level signal buses at a signal level representative of a logic zero signal level or a logic one signal level (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 19, the (MAS) circuitry arrangement as in claim 18, where said receiver of the stream of data toggles the one of the at least two multi-level signal buses between the first and the second signal levels to generate clock edges (page 1130-1131 section B "clock extractor").

Re claim 20, the (MAS) circuitry arrangement as in claim 18, where a beginning and an end of the stream of data is signaled by setting at least one of the different signal buses to a third signal level (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 21, Svensson discloses a mobile station comprising a plurality a sub-assemblies coupled together by a plurality of data communication buses connected to ports, where at least one port comprises a Multi-level Analog Signaling (MAS) circuit arrangement comprising a transmitter to encode data bits represented by multi-level analog signals(page 1130; section A, "encoder and driver"); where a data communications bus that couples the transmitter to a receiver in another port (fig.1,

two-wire link) comprises at least two multi-level signal buses for conveying the encoded data bits such that, on each multi-level signal bus, during each data bit period the signal level is required to change from a first signal level to a second, different signal level (fig.1, page 1129, section II, "a balanced two-wire link carrying a three-state code"); said transmitter indicating a data boundary to said receiver by holding one of the multi-level signal buses of the at least two multi-level signal buses at the same level for at least two consecutive bit periods(page 1130, section B, clock extractor").

Re claim 22, the mobile station as in claim 21, where said transmitter operates to encode data bits such that, when a data bit to be encoded is the same as the data bit encoded for an immediately prior bit period, the transmitter instead encodes a strobe signal represented by a predetermined one of the levels of the multi-level analog signal (fig.6, page 1130 section A, "encoder and driver"), where the presence of the strobe signal at the receiver is used to generate a clock edge (page 1130, section B, "clock extractor").

Re claim 23, the mobile station as in claim 22, where the multi-level analog signal comprises a PAM-3 signal, where two analog signal levels convey the encoded data bits and one analog signal level conveys the strobe signal (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 24, the mobile station as in claim 21, where the data boundary comprises one of the start or the end of a multi-bit frame (page 1130-1131 section B "clock extractor").

Re claim 28, the mobile station as in claim 21, where said transmitter and said

receiver cooperate to transmit a stream of data by toggling one of the at least two multi-level signal buses between first and second signal levels to generate clock edges; and by setting, so as to coincide with a generated clock edge, a signal level of another one of the at least two multi-level signal buses at a signal level representative of a logic zero signal level or a logic one signal level (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 29, the mobile station as in claim 28, where said receiver of the stream of data toggles the one of the at least two multi-level signal buses between the first and the second signal levels to generate clock edges (page 1130-1131 section B "clock extractor").

Re claim 30, the mobile station as in claim 28, where a beginning and an end of the stream of data is signaled by setting at least one of the different signal buses to a third signal level (page 1129, section II, "a balanced two-wire link carrying a three-state code").

Re claim 31, the mobile station as in claim 21, where one of the said sub-assemblies comprises a cellular engine that is coupled to circuitry external to said mobile station via another port and data communication bus (page 1132, "conclusion").

Re claim 32, Svensson discloses a circuitry comprising transmitter means comprising means for encoding data bits represented by multi multi-level analog signals (page1130; section A, "encoder and driver"); at least two multi-level signal buses means coupled between said transmitter means and a receiver means for conveying the encoded data bits such that (fig.1, two-wire link), on each multi-level signal bus means,

during each data bit period the signal level is required to change from a first signal level to a second, different signal level (fig.1,page 1129, section II, "a balanced two-wire link carrying a three-state code"); said transmitter means indicating a data boundary to the receiver means by holding one of the multi-level signal buses at the same level for at least two consecutive bit periods (page 1130, section B, clock extractor").

Re claim 33, the circuitry as in claim 34, where said encoding means operates to encode data bits such that, when a data bit to be encoded is the same as the data bit encoded for an immediately prior bit period, encoding means instead encodes a strobe signal represented by a predetermined one of the levels of the multi-level analog signal (fig.6, page 1130 section A, "encoder and driver"), where the presence of the strobe signal at the receiver is used to generate a clock edge (page 1130, section B, "clock extractor").

Re claim 34, the circuitry as in claim 33, where the multi-level analog signal comprises a PAM-3 signal, where two analog signal levels convey the encoded data bits and one analog signal level conveys the strobe signal (page 1129, section II, "a balanced two-wire link carrying a three-state code").

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5-7, 15-17, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Svensson "IEEE Journal of solid-state circuits: A 3-level Asynchronous Protocol for a differential Two-Wire communication link" in view Huang et al. US, 5,798,535.

Re claim 5, the method as claimed in claim 4 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between the transmitter and the receiver.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between the transmitter and the receiver (col. 1 line 42-54).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize multi-bit frame within said mobile device for the benefit of full color display (col. 1 line 53-58).

Re claim 6, the method as claimed in claim 4 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a display of the mobile station.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a display of the mobile station (col. 1 line 28-35).

Therefore, taking the combined teaching of Svensson and Huang as

a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize a control unit of a mobile station for the benefit of emitting the required amount of light (35-40).

Re claim 7, the method as claimed in claim 4 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a camera of the mobile station.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a display of the mobile station (col. 1 line 28-35).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize a control unit of a mobile station for the benefit of emitting the required amount of light (35-40).

Re claim 15, the circuit arrangement as claimed in claim 14 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between the transmitter and the receiver.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between the transmitter and the receiver (col. 1 line 42-54).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize multi-bit frame within said mobile device for the benefit of full

color display (col. 1 line 53-58).

Re claim 16, the circuit arrangement as claimed in claim 14 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a display of the mobile station.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a display of the mobile station (col. 1 line 28-35).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize a control unit of a mobile station for the benefit of emitting the required amount of light (35-40).

Re claim 17, the circuit arrangement as claimed in claim 14 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a camera of the mobile station.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a control unit of a mobile station and a display of the mobile station (col. 1 line 28-35).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize a control unit of a mobile station for the benefit of emitting the required amount of light (35-40).

Re claim 25, the mobile station as claimed in claim 24 does not disclose

multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between the transmitter and the receiver.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between the transmitter and the receiver (col. 1 line 42-54).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize multi-bit frame within said mobile device for the benefit of full color display (col. 1 line 53-58).

Re claim 26, the mobile station as claimed in claim 24 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a cellular engine of said mobile station and a display of said the mobile station.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between data between a cellular engine of said mobile station and said a display of the mobile station (col. 1 line 28-35).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize data between data between a cellular engine of said mobile station for the benefit of emitting the required amount of light (35-40).

Re claim 27, the mobile station as claimed in claim 24 does not disclose multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a cellular engine of said mobile station and a camera of said mobile station.

However, Huang teaches where the multi-bit frame comprises at least 24 bits for conveying 8-bit Red, Green and Blue data between a cellular engine of said mobile station and a camera of said mobile station (col. 1 line 28-35).

Therefore, taking the combined teaching of Svensson and Huang as a whole would have been rendered obvious to one skilled in the art to modify Svensson to utilize data between a cellular engine of said mobile for the benefit of emitting the required amount of light (35-40).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rahel Guarino whose telephone number is 571-270-1198. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Payne David can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RG

David Payne

DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER